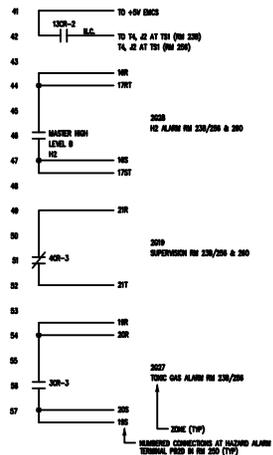
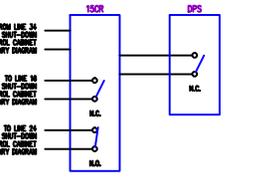


AUTOMATIC SHUT-DOWN CONTROL CABINET ELEMENTARY DIAGRAM



FIRE ALARM CONTROL PANEL WIRING



INTRINSIC SAFE REPEATER RELAY WIRING

NOTES

- Contacts are shown in Normal Operating State (Overhaul, with Main Power on).
- Differential Pressure Switch(DPS): Adjustable Set Point of 0.2 to 1.0 B-C. Set Point 1 0.5 inches. When the DP Inlet Inlet 0.2 inches, DPS will shut down the Process Gas Flow from each of the four Gas Cabinets.
- Intrinsic Safe Repeater Relay: STNR, 0200, 1 STNR. Mount Relay in Automatic Shut-Down Relay Cabinet. Separate three from Relay to DPS from other Cabinet Wiring by 2 inches minimum.
- Include redwiring Fans, Lights & Outputs on Hoods.

ALARM SYSTEM DESCRIPTION

- Test Switch on the Automatic Shut-Down Relay Cabinet:
  - This is a key operated switch. When it is opened, it indicates both the level 1 (TOX) and level 2 (DPS) alarm relays. When this switch is closed, the entire system can then be placed back in service.
- On Activation of Level 1 relay (TOXELV) from the MNA, or MNA low level relay (SE 1L2) from the Slager RAD RC:
  - Load connections to rooms 230 & 250 via a horn in each room & a buzzer in the MNA & Slager RAD RC.
  - Load connections to Offices (rooms 242 & 207) via horns.
- On Activation of Level 2 relay (TOXELV) from the MNA:
  - Shut down of the gas cabinets via 202 relay. Load connections to room 230, via a buzzer on each of the 3 toxic gas cabinets and a horn on the hydrogen cabinet.
  - On the MNA, the level 2 Alarm LED lights will indicate RED at the sample point or points where toxic gas is being detected.
  - Load connections outside drawings of rooms 230 & 250 via Barking alarm: "TOXIC GAS RELEASE - LEAVE AREA".
  - Activation of outside counter "Area where" horns that are mounted above drawings of rooms 230 & 250.
  - Report to the Fire House on a level 2 toxic gas release alarm via Bldg. 2 Pyrotechnic Fire Alarm Control Panel, Zone 2027, Transmitter 230.
- On Activation of MNA High level alarm relay (002.1L2) of the Slager RAD RC:
  - Shut down of the gas cabinets via 202 relay. Load connections to room 230, via a buzzer on each of the 3 toxic gas cabinets and a horn on the hydrogen cabinet.
  - Report to the Fire House on a high level hydrogen alarm via Bldg. 2 Pyrotechnic Fire Alarm Control Panel, Zone 2026, Transmitter 230.
- On Activation of Differential Pressure Switch (DPS) due to loss of gas cabinet ventilation:
  - Shut down of the gas cabinets via 202 relay. Load connections to room 230, via a buzzer on each of the 3 toxic gas cabinets and a horn on the hydrogen cabinet.
  - Load connections to room 230 via Stale Alert mounted on MNA cabinet.
- On Activation of any of the MNA, Loss of monitoring, Loss of coverage, or Power Loss relays:
  - Load connections to room 230 via Stale Alert mounted on MNA cabinet.
  - Report to the Fire House on a separation alarm via Bldg. 2 Pyrotechnic Fire Alarm Control Panel, Zone 2018, Transmitter 230.
- On Activation of MNA, Maintenance or Analyzer 1 relays:
  - Load connections to room 230 via Stale Alert mounted on MNA cabinet.
- On Activation of either of the two Shut-Down Solenoids:
  - Shut down VLV 232 & Dry Lineair Branch in Room 230.
  - Shut down VLV 248, VLV 247, Dry Lineair Branch and Wet Lineair Branch in Room 230.
  - Shut down HEPA Filters and Liberty Fan.
  - Reset Procedure: At Panel 2405A, turn Circuit Breaker No. 23 back on. Panel is in control to the left of Entrance to Room 230. At Panel 2405A, turn Circuit Breaker No. 13 back on. Panel is in Room 230.
- On Activation of Emergency Shut-Off buttons, located at the MCCB Control Cabinet & by the doorway into Room 230:
  - Shut down Power, Circuit 2405A-20, to MCCB in Room 230.
  - Reset Procedure: Pull out Emergency Shut-Off Button(s). Reset MCCB.

LEGEND

|      |                                     |      |                                       |
|------|-------------------------------------|------|---------------------------------------|
| LINE | Level 1 Hydrogen                    | N.C. | Normally Open (Default Staff State)   |
| LPI  | Level 1 Point 1 Alarm Contact       | N.C. | Normally Closed (Default Staff State) |
| IE   | In-surge                            | OR   | Open on Rise                          |
|      | Gas Disassembly/Change in its state | DPS  | Differential Pressure Switch          |

REFERENCE DWG:

482033 TOXIC GAS ALARM & MONITORING CONTROL WIRING DIAGRAMS SHEET 2

|          |  |                                |   |             |         |
|----------|--|--------------------------------|---|-------------|---------|
| D LMR PC |  | REVISED FACP WIRING - AS-BUILT | BLDG. 2 EPITAXIAL TECHNIQUES LAB SUITE                                      | L.S. Ruback | 7-29-91 |
| C LMR PC |  | REVISED FACP WIRING - AS-BUILT | TOXIC GAS ALARM & MONITORING CONTROL WIRING DIAGRAMS                        | P.M. Chen   | 7-29-91 |
| B PC     |  | MODIFICATIONS                  | SHEET 1   | RMGleason   | 7-29-91 |
| A PC     |  | ADDED HE SENSOR & HEPA FILTERS | UNIVERSITY OF CALIFORNIA LAWRENCE BERKELEY LABORATORY FACILITIES DEPARTMENT | 4802E032D   | E1      |